DARPA-BAA-10-05 Flow-based Information Theory Tracking (FITT)
Broad Agency Announcement (BAA)

for

Information Processing Techniques Office (IPTO)
Defense Advanced Research Projects Agency (DARPA)

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Part One: Overview Information

- **Federal Agency Name –** Defense Advanced Research Projects Agency (DARPA), Information Processing Techniques Office (IPTO)
- **Funding Opportunity Title –** Flow-based Information Theory Tracking (FITT)
- **Announcement Type –** Initial Broad Agency Announcement (BAA)
- **Funding Opportunity Number –** DARPA-BAA-10-05
- **Catalog of Federal Domestic Assistance Numbers (CFDA) –** N/A
- **Key Dates**
  - Posting Date – see announcement at www.fbo.gov
  - Proposal Due Date
    - Initial Closing – 12:00 noon (ET), 18 February 2010
    - Final Closing – 12:00 noon (ET), 18 July 2010
- **Anticipated individual awards – Multiple awards are anticipated.**
- **Types of instruments that may be awarded** – Procurement contracts or Other Transaction Agreements. Offerors should note no grants or cooperative agreements will be available under this solicitation.
- **Technical POC:** Tim Clark, Program Manager, DARPA/STO
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  - FAX: (703) 248-8036
  - ATTN: DARPA-BAA-10-05

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Part Two: Full Text of Announcement

I. FUNDING OPPORTUNITY DESCRIPTION

The Defense Advanced Research Projects Agency (DARPA) often selects its research efforts through the Broad Agency Announcement (BAA) process. This BAA is being issued, and any resultant selection for negotiation and/or award will be made, using procedures under FAR Part 35.016. Proposals received as a result of this BAA shall be evaluated in accordance with evaluation criteria specified herein through a scientific review process. The BAA will appear first on the Federal Business Opportunities website, http://www.fedbizopps.gov/, and then at http://www.darpa.mil/ipto/solicit/solicit_open.asp. The following information is for those wishing to respond to the BAA.

DARPA is soliciting innovative research proposals to develop models and algorithms enabling long-duration tracking of all ground vehicles in a large semi-urban or urban area. Proposed research should investigate innovative approaches that enable revolutionary advances. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

Introduction

As early as the 1930's, the mathematical characterization of measured traffic data has demonstrated the fluid nature of aggregate ground traffic and the relationship between the road network and driver behaviors. Existing DoD traffic models used in today's tracking algorithms are primarily kinematic-constraint driven and limited in that they typically do not account for detailed road structure (e.g., intersection signaling structure), on-line derivable traffic behaviors (e.g., typical traffic speeds and densities as a function of position and time), or vehicle interaction dynamics (e.g., reduced speed at higher densities, a situation in which traffic behaves in some ways similar to a fluid). The Flow-based Information Theory Tracking (FITT) program establishes a new basis for tracking in urban environments by combining the well established science of traffic flow theory with advanced modeling and flow-based tracking algorithm development to enable dramatically improved track duration while still operating in real-time.

The FITT program assumes that a sensor (e.g., radar or a set of cameras) observes a ground area and provides target detection reports. These detection reports include target location and, depending on the sensor, may include additional information such as velocity, radar cross-section (RCS) or other radar features, spectral characteristics, or 2-D target image chips. The FITT algorithms will use this information to track the ensemble of the vehicles.

As ground target densities increase in more urban areas, existing trackers often lose target track due to nearby confusers, and operate with limited hypothesis depths to avoid computational overload. In addition, urban traffic offers many constraints that

conventional trackers do not exploit. For example, ground vehicles cannot pass thru each other, they cannot go beyond the bounds of typical urban roads, and they generally obey cultural conventions and traffic laws. Under these constraints, ground traffic behaves somewhat like a fluid, and the FITT Program will develop new tracking algorithms based on this fluidic viewpoint.

In urban traffic, there are common situations where there is little useful information to be gained from frequent target updates. For example, a vehicle boxed in by other vehicles on a limited-access road is unable to make any dramatic maneuvers; in this case, frequent updates may do little more than confirm that vehicle's position relative to other vehicles. There are other situations where an additional sensor update can provide critical information. For example, whether or not a vehicle slows as it approaches an intersection may serve as an indication of its intentions to go straight or turn. This is the "information theoretic" aspect of FITT. In those cases in which the sensor is controllable, the tracking algorithm must provide tasking feedback so that the limited sensor resources are used to extract the maximum possible information from the target ensemble.

Background

To evaluate the potential FITT tracking improvements, DARPA conducted an experiment pitting a state-of-the-art automated ground vehicle tracker against humans viewing the same wide-area optical imaging sensor data. The automated tracker produced a large number of brief track segments with a median track lifetime of 4.2 seconds. The human operators achieved a median track lifetime of 420 seconds. They realized this hundred-fold improvement by applying the available contextual constraints and their own knowledge of driving.

The 4.2 second tracks are not useful, but these are the best that are available from an automated tracker on-board a sensor aircraft. The 420 second tracks are useful, but are not available until the aircraft lands and the sensor data is offloaded. The 420 second result provides evidence that a real-time automated tracker could achieve similar performance if it is enhanced with the same logic used by human operators.

Long-term tracking of all vehicles in an urban area should provide the FITT tracker with advantages over human operators using only contextual constraints and general driving knowledge. For example, at a specific intersection, the tracker can exploit its history of observation, correlating specific behavior while approaching the intersection with actions taken in the intersection. On a greater scale, the FITT tracker can determine popular routes and daily traffic patterns to estimate vehicle actions with a minimum of sensor data.

Program Description and Structure

FITT is structured as a two phase program consisting of traffic theory and modeling, tracking algorithm development, plus laboratory and real-time flight testing. Both phases

will involve the development of traffic flow theory and modeling and the development of flow-based tracking algorithms (described below). Phase 1 metrics will validate the fundamental technical approach and Phase 2 metrics will demonstrate additional gains available when using flow-based traffic models. Due to the integral nature of the modeling and tracking algorithm development efforts, the program anticipates a cross-discipline approach. Interdisciplinary teams of experts will bridge the traffic theory community and the DoD tracking community. The Government will provide urban traffic data to support the traffic flow theory and modeling task. This GFP is sensor data which will be both classified and unclassified depending on the sensor and the collected location. Proposers may use other data so long as those data can be freely shared throughout the FITT Program. During the program, DARPA and the Air Force Research Lab (AFRL) will maintain a traditional kinematic-based multi-hypothesis tracker as a baseline for comparison.

DARPA is nominally anticipating a 15 month Phase 1 effort, but Phase 1 and 2 schedules must realistically match the proposed development efforts.

Areas of Interest

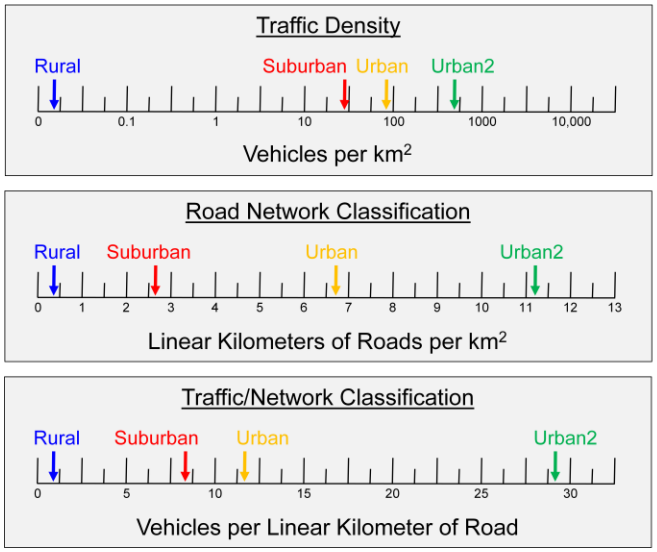
The program will address both of the following technical areas of interest.

> **Technical Area One: Traffic Flow Theory and Model Development.** This effort requires application of hydrodynamics, traffic modeling for urban planning, probability and statistics, psychology, and physiology. The developed models should include a generic baseline with the ability to incorporate specific knowledge of targets and the local environment as it becomes available from the tracker or from outside sources. These specifics may include the prior observed kinetic profile of a particular vehicle, timing of traffic signals, or estimates of drivers' visibility. When completed, the model must support two functions. First, the model must assist the tracker in deciding how to associate the latest set of target detections with established long-term tracks. Second, the model must adapt itself to observed sensor data (target features) and track data.
>
> **Technical Area Two: Flow-Based Tracking Algorithm Development.** This effort requires application of the models developed under Technical Area One, representing existing knowledge bases (e.g., local traffic regulations), self-generated knowledge bases (e.g., locally observed traffic patterns), and all constraints on urban traffic. When completed, the algorithms must associate sensor detections into long-term vehicle tracks and they must provide feedback to the sensors to optimize track performance. Both of these functions must be implementable in real-time. The tracking algorithms will be demonstrated both in a lab environment and a real-time flight demonstration.

Program Metrics

Table 1 lists the Phase 1 metrics which are, effectively, a 10dB improvement in track-

life-expectancy (TLE) with minimal increase in processing burden. This comparison will be made using Government-provided complex urban data and suburban/rural data as defined by the Air Force Research Laboratory (AFRL/RIE) in Figure 1 below. The data will include target detection reports only as described in the introduction above. If the 10dB performance improvement has been demonstrated at the end of Phase 1, the program may continue to Phase 2 if there is continued Government interest and available funding. However, if the Phase 1 metrics are not achieved, the program is unlikely to continue to Phase 2.



$$N_{V_r} = \frac{N_{D_r}}{S \times L_r}$$

N_{V_r} = Number of Vehicles on the Road (r)
N_{D_r} = Number of Detections on the Road (r)
S = Scan rate
L = Length of Road Segment (r)

Figure 1: Traffic Density Classifications

Phase 1 Metric	AFRL Kinematic Tracker	Performer FITT Tracker
>10dB Track-Life-Expectancy (TLE) improvement using same data set	x (Urban2)	10x (Urban2)
	x (Rural/Suburban)	10x (Rural/Suburban)
Automated Processing Time	x	<20% increase

Table 1. Demonstrated performance required at the end of Phase 1 in order to be eligible to proceed to Phase 2.

Table 2 below lists goals for performance to be demonstrated by the end of Phase 2. The lab demonstrations are anticipated to use wide-area optical imaging data provided to performers by the Government to demonstrate a 20dB increase in track-life-expectancy and a 10dB decrease in track updates for a constant probability of track. The flight demonstration is anticipated to use a Doppler radar and a real-time implementation of the FITT algorithms however, the performers may provide a suitable replacement sensor and flight demonstration plan.

Note: Data will be provided by the Government. This sensor data will be both classified and unclassified depending on the sensor and the collected location. The initial dataset will be unclassified, but later datasets will be classified SECRET. Performers must demonstrate their capability to store and process classified data at the SECRET level.

Phase 2 End-State Goals	AFRL Kinematic Tracker	Contractor FITT Tracker
Lab: 20dB TLE improvement using same data set	x (Urban2) x (Rural/Suburban)	100x (Urban2) 100x (Rural/Suburban)
Lab: 10dB reduction in track updates for constant probability of track maintenance (P_T=0.95)	x (Urban2)	10x (Urban2)
Flight Demo: >10dB real-time TLE improvement in urban tracking over conventional real-time tracking algorithms	X	10x
Automated Processing Time	X	<5% increase

Table 2. Goals for performance to be demonstrated at the end of Phase 2.

Deliverables

All computer software developed, assembled, or acquired under the FITT Program must be delivered as source and object (executable) code. Include the source listings and source code for the target computer system. Delivered software under this effort is to be completely maintainable and modifiable with no reliance on any non-delivered computer programs or documentation. For all software purchased or licensed for use as a component of the software to be delivered, arrangements shall be made for licensing and maintenance agreements to be transferred to the Government upon the completion of this effort. All reporting should be delivered as required in Section VI.C.1.

All noncommercial software (including source code), software documentation, and technical data generated under the FITT program is expected be provided as a deliverable to the Government, with a minimum of Government Purpose Rights. To the greatest extent feasible, therefore, offerors should not include background proprietary software and technical data as the basis of their proposed approach. If offerors want to use proprietary software or technical data or both as the basis of their proposed approach, in whole or in part, they should clearly identify such software/data and its proposed particular use(s), explain why the Government will be able to reach its program goals (including transition) within the proprietary model offered, and provide possible nonproprietary alternatives in any areas that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution.

Offerors expecting to utilize, but not to deliver, open source tools or other materials in implementing their approach must ensure that the government does not incur any legal obligation due to such utilization. All references to "unlimited" or "government purpose rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) Part 227. (See also section VI.B.2. below, “Intellectual Property,” including subsections c. and d.)

II. AWARD INFORMATION

Multiple awards are anticipated. The amount of resources made available to this BAA will depend on the quality of the proposals received and the availability of funds. Proposals identified for negotiation may result in a procurement contract or other transaction agreement depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. Awards under this BAA will be made to offerors on the basis of the evaluation criteria listed below (see section V - Application Review Information), and program balance to provide overall value to the Government.

In addition, the Government reserves its rights to the following:

- to select for negotiation all, some, one, or none of the proposals received in response to this solicitation,
- to make awards without discussions with offerors,
- to conduct discussions if it is later determined to be necessary,
- to segregate portions of resulting awards into pre-priced options,
- to accept proposals in their entirety or to select only portions of proposals for award, In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that offeror;
- to fund proposals in phases with options for continued work at the end of one or more of the phases,
- to request any additional, necessary documentation once it makes the award instrument determination; such additional information may include but is not limited to Representations and Certifications, and
- to remove offerors from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the offeror fails to timely provide requested additional information.

As of the date of publication of this BAA, DARPA expects that program goals for this BAA cannot be met by offerors intending to perform 'fundamental research,' i.e., basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization the results of which ordinarily are restricted for proprietary or national security reasons. Notwithstanding this statement of expectation, DARPA is not prohibited from considering and selecting research proposals that, regardless of the category of

research proposed, still meet the BAA criteria for submissions. In all cases, the contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument provisions with selectees.

III. ELIGIBILITY INFORMATION

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Government-funded entities (Federally Funded Research and Development Centers (FFRDCs), Government/National laboratories) and Government entities (military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity (as prime or sub) unless they meet the following conditions.

- FFRDCs must clearly demonstrate that the work is not otherwise available from the private sector AND they must also provide a letter on letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to Government solicitations in compliance with the associated FFRDC sponsor agreement terms and conditions. This information is required for FFRDCs proposing to be prime or subcontractors.
- Government entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority (as well as, where relevant, contractual authority) establishing their ability to propose to Government solicitations.
- At the present time, DARPA does not consider 15 U.S.C. 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility.
- **DARPA will consider eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the offeror.**

Foreign participants and/or individuals may participate to the extent that such participants comply with any necessary Non-Disclosure Agreements, Security Regulations, Export Control Laws, and other governing statutes applicable under the circumstances.

Applicants considering classified submissions (or requiring access to classified information during the life-cycle of the program) shall ensure all industrial, personnel, and information system processing security requirements are in place and at the appropriate level (e.g., Facility Clearance (FCL), Personnel Security Clearance (PCL), certification and accreditation (C&A)) and any Foreign Ownership Control and Influence (FOCI) issues are mitigated prior to such submission or access. Additional information on these subjects can be found at: www.dss.mil.

1. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208.). The DARPA Program Manager for this BAA is Mr. Timothy Clark.

Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest in regards to the DARPA Program Manager, as well as those individuals chosen to evaluate proposals received under this BAA, and will promptly notify the offeror if any appear to exist. (Please note the Government assessment does NOT affect, offset, or mitigate the offeror's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.)

In accordance with FAR 9.503 and without prior approval or a waiver from the DARPA Director, a contractor cannot simultaneously be a SETA and a performer. Therefore, all offerors and proposed subcontractors must affirm whether they (their organizations and individual team members) are providing scientific, engineering, and technical assistance (SETA) or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror, sub and/or individual supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The Government will make the final determination on what constitutes a conflict of interest. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. **Proposals that fail to fully disclose potential conflicts of interests and/or do not have plans to mitigate this conflict will be rejected without technical evaluation and withdrawn from further consideration for award.**

If a prospective offeror has any questions on what constitutes a conflict of interest (whether organizational or otherwise), the offeror should promptly raise the issue with DARPA by sending his/her contact information and a summary of the potential conflict by email to the mailbox address for this BAA at DARPA-BAA-10-05@darpa.mil, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

B. Cost Sharing or Matching

Cost sharing is not required for this particular program; however, cost sharing will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., for any Technology Investment Agreement under the authority of 10 U.S.C. 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

C. Other Eligibility Requirements

1. Ability to Support Classified Design and Development

All offerors wishing to submit proposals against this BAA must, prior to execution of an award, have personnel and access to facilities with a minimum classification level of SECRET. Offerors proposing against this BAA must provide their CAGE code and security point(s) of contact in their proposals. **Offerors wishing to submit a proposal must first request the FITT Program Security Classification Guide per the instructions in Section IV.A. below.**

IV. APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Package

This solicitation, the FITT Program Security Classification Guide and Form DD254 (Contract Security Classification Specification) contains all information required to submit a proposal. No additional forms, kits, or other materials (other than those noted within this document) are needed. This notice constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

To obtain a copy of the FITT Program Security Classification Guide, offerors must send a request to the BAA mailbox, DARPA-BAA-10-05@darpa.mil.

The request must include the following information:

Company Name
Classified mailing address
CAGE Code
Facility Security Officer (FSO) name and phone number
Technical POC name and phone number

B. Content and Form of Application Submission

1. Proposal Information

DARPA will employ an electronic upload submission system for all **UNCLASSIFIED** responses to this BAA. Responding to this announcement requires completion of an online cover sheet for each proposal prior to submission. To do so, the offeror must go to https://www.csc-ballston.com/baa/index.asp?BAAid=10-05 and follow the instructions there. Upon completion of the online cover sheet, a Confirmation Sheet will appear along with instructions on uploading proposals. The Confirmation Sheet will be used as the Cover Sheet for the proposal and will contain the information outlined below in Proposal Section 1.1. If an offeror intends to submit more than one proposal, a unique UserId and password must be used in creating each cover sheet. **Since offerors may encounter heavy traffic on the web server, they SHOULD NOT wait until the day the proposal is due to fill out a coversheet and submit the proposal!**

DARPA anticipates that proposals will be unclassified however, offerors may submit a classified appendix (up to SECRET) to their proposal, if necessary. Offerors submitting classified appendices to their proposals must provide two copies of the appendix (one hard copy and one on CD) and mail them per the instructions in Section VI.B.1. – Security Classification and Proprietary Issues. **DO NOT UPLOAD ANY CLASSIFIED MATERIAL AT https://www.csc-ballston.com/baa/index.asp?BAAid=10-05!**

2. Proposal Preparation and Format

The proposal shall be delivered in two volumes, Volume 1 (technical proposal) and Volume 2 (cost proposal). Proposals not meeting the format described in this BAA may not be reviewed.

All uploaded proposals must be zipped and encrypted using Winzip or PKZip with 256-bit AES encryption. Only one zipped/encrypted file will be accepted per proposal. Proposals which are not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and emailed to DARPA-BAA-10-05@darpa.mil at the time of proposal submission. See https://www.CSC-Ballston.com/baa/Encryption_Instructions.htm for the encryption password form and additional encryption information. Note: the word “PASSWORD” must appear in the subject line of the above email and there are minimum security requirements for establishing the encryption password. Failure to provide the encryption password will result in the proposal not being evaluated.

Volume 1 – Technical Proposal

The technical proposal shall include the following sections, each starting on a new page (where a "page" is 8-1/2 by 11 inches with type not smaller than 12 point, charts may use 10 pt font, margins not smaller than 1 inch, and line spacing not smaller than single-spaced). All submissions must be in English. Individual elements of the proposal shall not exceed the total of the maximum page lengths for each section as shown in braces { } below.

Ensure that each section provides the detailed discussion of the proposed work necessary to enable an in-depth review of the specific technical and managerial issues. Specific attention must be given to addressing both risk and payoff of the proposed work that make it desirable to DARPA.

Proposal Section 1. Administrative

1.1 Confirmation Sheet/Cover Sheet

As described above, this cover sheet will contain the following information:

- BAA number
- Proposal title
- Technical point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address
- Administrative point of contact including: name, telephone number, electronic mail address, fax (if available) and mailing address
- Summary of the costs of the proposed research, including total base cost, estimates of base cost in each year of the effort, estimates of itemized options in each year of the effort, and cost sharing if relevant
- Contractor's reference number (if any)
- Contractor's type of business, selected from among the following categories:
    - WOMEN-OWNED LARGE BUSINESS,
    - OTHER LARGE BUSINESS,
    - SMALL DISADVANTAGED BUSINESS [Identify ethnic group from among the following: Asian-Indian American, Asian-Pacific American, Black American, Hispanic American, Native American, or Other],
    - WOMEN-OWNED SMALL BUSINESS,
    - OTHER SMALL BUSINESS,
    - HBCU,
    - MI,
    - OTHER EDUCATIONAL,
    - OTHER NONPROFIT, OR
    - FOREIGN CONCERN/ENTITY.

1.2 Table of contents {No page limit}

Proposal Section 2. Technical Details

2.1 PowerPoint summary chart {1 chart}:
Provide a one slide summary of the proposal in PowerPoint that effectively and succinctly conveys the main objective, key innovations, expected impact, and other unique aspects of the proposal.

2.2 Innovative claims for the proposed research {1 Page}:
This page is the centerpiece of the proposal and should succinctly describe the unique proposed approach and contributions. This section may also *briefly* address the

following topics:

a. Problem Description. Provide a concise description of the problem areas addressed. Make this specific to your approach.
b. Research Goals. Identify specific research goals. Goals should address the technical challenges of the effort.
c. Expected Impact. Describe the expected impact of your research.

2.3 Proposal Roadmap {2 Pages}:

The roadmap provides a top-level view of the content and structure of the proposal. It contains a synopsis for each of the roadmap areas defined below, which should be elaborated elsewhere. It is important to make the synopses as explicit and informative as possible. The roadmap must also cross-reference the proposal page number(s) where each area is elaborated. The required roadmap areas are:

a. Main goals of the proposed research.
b. Tangible benefits to end users (i.e., benefits of the capabilities afforded if the proposed technology is successful).
c. Critical technical barriers (i.e., technical limitations that have, in the past, prevented achieving the proposed results).
d. Main elements of the proposed technical approach.
e. Basis of confidence (i.e., rationale that builds confidence that the proposed approach will overcome the technical barriers).
f. Nature and description of end results to be delivered to DARPA. In what form will results be developed and delivered to DARPA and the scientific community? Note that DARPA encourages experiments, simulations, specifications, proofs, etc. to be documented and published to promote progress in the field. Offerors should specify both final and intermediate products.
g. Cost and schedule of the proposed effort.

2.4 Technical Approach {20 pages}:

Provide a detailed description of the technical approach. Teams may choose to allocate the pages among the program phases unequally; however, separate sections are required for each phase. This section will elaborate on many of the topics identified in the proposal roadmap and will serve as the primary expression of the offerors' scientific and technical ideas.

2.5 Comparison with Current Technology {4 Pages}:

Describe state of the art approaches and the limitations that relate to each area addressed by the proposal. Describe and analyze state of the art results, approaches, and limitations within the context of the problem area addressed by this research. Demonstrating problem understanding requires not just the enumeration of related efforts; rather, related work must be compared and contrasted to the proposed approach.

2.6 Statement of Work (SOW) {4 pages}:

In plain English, clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. For each task/subtask, provide:

- A general description of the objective (for each defined task/activity);

- A detailed description of the approach to be taken to accomplish each defined task/activity);
- Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
- The exit criteria for each task/activity - a product, event or milestone that defines its completion.
- Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities. Include expected delivery date for each deliverable.

Note: The SOW should be developed so that each phase of the program is separately defined. Offerors should format their proposals for Phase 1, with Phase 2 tasks/subtasks as options. Do not include any proprietary information in the SOW.

2.8 Management Plan {4 Pages}:

Describe formal teaming agreements that are required to execute this program, a brief synopsis of all key personnel, and a clearly defined organization chart for the program team (prime contractor and subcontractors, if any). Provide an argument that the team size and composition are both necessary and sufficient to meet the program objectives. Provide detailed task descriptions, costs, and interdependencies for each individual effort and/or subcontractor. To the extent that graduate students and postdocs are involved in individual efforts, describe their role and contribution. Information in this section must cover the following information:

a. Programmatic relationship of team members;
b. Unique capabilities of team members;
c. Task responsibilities of team members;
d. Teaming strategy among the team members;
e. Key personnel along with the amount of effort to be expended by each person during each year; and
f. Government role in project, if any.

2.9 Schedule and Milestones:

This section should include:

a. {1 Page} Schedule Graphic. Provide a graphic representation of project schedule including detail down to the individual effort level. This should include but not be limited to, a multi-phase development plan, which demonstrates a clear understanding of the proposed research; and a plan for periodic and increasingly robust tests over the project life that will show applicability to the overall program concept. Show all project milestones. Use “x months after contract award” designations for all dates.
b. {2 Pages} Detailed Task Descriptions. Provide detailed task descriptions for each discrete work effort and/or subcontractor in schedule graphic.
c. {2 Pages} Project Management and Interaction Plan. Describe the project management and interaction plans for the proposed work. If proposal includes subcontractors that are geographically distributed, clearly specify working / meeting models. Items to include in this category include software/code

repositories, physical and virtual meeting plans, and online communication systems that may be used.

2.10 Personnel, Qualifications, and Commitments {NO MORE THAN ONE PAGE PER KEY PERSON}:
List key personnel, showing a concise summary of their qualifications, discussion of offeror's previous accomplishments, and work in this or closely related research areas. Indicate the level of effort in terms of hours to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity and the proposal will be evaluated accordingly. It is DARPA's intention to put key personnel clauses into the contracts, so offerors should not bid personnel whom they do not intend to execute the contract.

Include a table of key individual time commitments as follows:

Key Individual	**Project**	**Pending/Current**	**2010**	**2011**	**2012**
Jane Doe	FITT	Proposed	ZZZ hours	UUU hours	WWW hours
	Project 1	Current	n/a	n/a	n/a
	Project 2	Pending	100 hours	n/a	n/a
John Deer	FITT	Proposed			

2.11 Cost Summaries {3 pages}:
Provide a top level total cost summary for the entire program broken down by phases. Show each major task and subtask by month and delineate prime and major subcontractor efforts. Offerors should format their proposals for Phase 1, with Phase 2 priced as an option.

2.12 Organizational Conflict of Interest Affirmations and Disclosure {No page limit}
Per the instructions in Section III.A.1 above, if the offeror or any proposed sub IS providing SETA support, as described, to any DARPA technical office(s) through an active contract or subcontract (regardless of which DARPA technical office is being supported), they must provide documentation: 1) stating which office(s) the offeror, sub and/or individual supports, 2) identify the prime contract numbers AND 3) include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate the conflict.

If the offeror or any proposed sub IS NOT currently providing SETA support as described, then the offeror should simply state "NONE."

Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical

evaluation and withdrawn from further consideration for award.

2.13 Intellectual Property {No page limit}
Per section VI.B.2 below, offerors responding to this BAA must submit a separate list of all technical data or computer software that will be furnished to the Government with other than unlimited rights. The Government will assume unlimited rights if offerors fail to identify any intellectual property restrictions in their proposals. Include in this section all proprietary claims to results, prototypes, deliverables or systems supporting and/or necessary for the use of the research, results, prototypes and/or deliverables. If no restrictions are intended, then the offeror should state "NONE".

2.14 Human use {No page limit}:
For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. For further information on this subject, see Section VI.B.4 below. If human use is not a factor in a proposal, then the offeror should state "NONE."

2.15 Animal Use {No page limit}
For submissions containing animal use, proposals must briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. For further information on this subject, see Section VI.B.5 below. If animal use is not a factor in a proposal, then the offeror should state "NONE."

2.16 Statement of Unique Capability Provided by Government or Government-funded Team Member {No page limit}
Per section III.A. – Eligible Applicants, proposals which include Government or Government-funded entities (i.e., FFRDC's, National laboratories, etc.) as prime, sub or team member, shall provide a statement which clearly demonstrates the work being provided by the Government or Government-funded entity team member is not otherwise available from the private sector. If none of the team members belongs to a Government or Government-funded entity, then the offeror should state "Not Applicable."

2.17 Government or Government-funded Team Member Eligibility {No page limit}
Per section III.A. – Eligible Applicants, proposals which include Government or Government-funded entities (i.e., FFRDC's, National laboratories, etc.) as prime, sub or team member shall provide documentation citing the specific authority which establishes they are eligible to propose to Government solicitations: 1) statutory authority; 2) contractual authority; 3) supporting regulatory guidance; AND 4) evidence of agency approval . If no such entities are involved, then the offeror should state "None."

2.18 Participation Strategy for Classified Efforts {1 page} The data provided for the Phase 1 and Phase 2 demonstrations will be classified SECRET. All offerors and proposed subcontractors (including their parent entities, subsidiaries, and affiliates as that term is defined in FAR 2.101) must provide a brief description of their security

processes and plans for handling classified data and strategy to participate in the classified algorithm validation.

OPTIONAL Section 3 - Additional Information
Offerors may submit a bibliography and no more than 3 papers OR 3 videos/animations showing previous work relevant to this BAA**. If submitting videos/animations, offerors should note that the file upload size limit for the entire proposal is limited to 70 MB. This includes videos/animations, if any.**

Volume 2 – Cost Proposal

Cover sheet

- BAA number;
- Lead Organization Submitting proposal;
- Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT";
- Contractor's reference number (if any);
- Other team members (if applicable) and type of business for each;
- Proposal title;
- Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- Award instrument requested: cost-plus-fixed-free (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (*specify*), or other transaction;
- Place(s) and period(s) of performance;
- Total proposed cost separated by basic award and option(s) (if any);
- Name, address, and telephone number of the offeror's cognizant Defense Contract Management Agency (DCMA) administration office (*if known)*;
- Name, address, and telephone number of the offeror's cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
- Date proposal was prepared;
- DUNS number;
- TIN number; and
- Cage Code;
- Subcontractor Information; and
- Proposal validity period (minimum 180 days).

Detailed cost breakdown
For purposes of building your cost proposal, assume an estimated start date of 01 August 2010. Offerors should format their cost proposals as follows. Phase II should be proposed as a priced Option.

Provide: (1) total program cost broken down by major cost items (direct labor, including labor categories; subcontracts; materials; other direct costs, overhead charges, etc.) and further broken down by task and phase; (2) major program tasks by fiscal year; (3) an itemization of major subcontracts and equipment purchases; (4) an itemization of any information technology (IT) purchase[1]; (5) a summary of projected funding requirements by month; and (6) the source, nature, and amount of any industry cost-sharing; (7) identification of pricing assumptions of which may require incorporation into the resulting award instrument (e.g., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Expert/s, etc.) and 8) provide appropriate cost or price analyses of subcontractor proposals, IAW FAR 15.404-3, to establish the reasonableness of proposed subcontract prices.

The prime contractor is responsible for compiling and providing all subcontractor proposals for the Procuring Contracting Officer (PCO). Subcontractor proposals should include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. Where the effort consists of multiple portions which could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates for each. NOTE: for IT and equipment purchases, include a letter stating why the offeror cannot provide the requested resources from its own funding.

Provide supporting cost and pricing information in sufficient detail to substantiate the summary cost estimates above. Include a description of the method used to estimate costs and supporting documentation. Note: “cost or pricing data” as defined in FAR Subpart 15.4 shall be required if the offeror is seeking a procurement contract award of $650,000 or greater unless the offeror requests an exception from the requirement to submit cost or pricing data. “Cost or pricing data” are not required if the offeror proposes an award instrument other than a procurement contract (e.g., a grant,

[1] IT is defined as “any equipment, or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the agency. (a) For purposes of this definition, equipment is used by an agency if the equipment is used by the agency directly or is used by a contractor under a contract with the agency which – (1) Requires the use of such equipment; or (2) Requires the use, to a significant extent, or such equipment in the performance of a service or the furnishing of a product. (b) The term “information technology” includes computers, ancillary, software, firmware and similar procedures, services (including support services), and related resources. (c) The term “information technology” does not include – (1) Any equipment that is acquired by a contractor incidental to a contract; or (2) Any equipment that contains imbedded information technology that is used as an integral part of the product, but the principal function of which is not the acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information. For example, HVAC (heating, ventilation, and air conditioning) equipment such as thermostats or temperature control devices, and medical equipment where information technology is integral to its operation, are not information technology.”

cooperative agreement, or other transaction.) All proprietary subcontractor proposal documentation, prepared at the same level of detail as that required of the prime, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the offeror or by the subcontractor organization.

For information on 845 Other Transaction Authority for Prototypes (OTA) agreements, refer to http://www.darpa.mil/cmo/other_trans.html. All proposers requesting an 845 Other Transaction Authority for Prototypes (OTA) agreement must include a detailed list of milestones. Each such milestone must include the following: milestone description, completion criteria, due date, payment/funding schedule (to include, if cost share is proposed, contractor and Government share amounts). It is noted that, at a minimum, such milestones should relate directly to accomplishment of program technical metrics as defined in the BAA and/or the offeror's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price milestones with a payment/funding schedule to the maximum extent possible. Do not include proprietary data. If the proposer requests award of an 845 OTA agreement as a nontraditional defense contractor, as so defined in the OSD guide entitled "Other Transactions (OT) Guide For Prototype Projects" dated January 2001 (as amended) (http://www.acq.osd.mil/dpap/Docs/otguide.doc), information must be included in the cost proposal to support the claim. Additionally, if the offeror requests award of an 845 OTA agreement, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.

C. Submission Dates and Times

The full proposal, including any classified appendices, must be submitted per the instructions in Section IV.B - Content and Form of Application Submission and Section VI.B.1 – Security Classification and Proprietary Issues by 1200 noon (ET) on 18 February 2010 (initial closing), in order to be considered during the initial evaluation phase. While DARPA-BAA-10-05 will remain open until 1200 noon (ET) 18 July 2010 (final closing date/BAA expiration), offerors are warned that the likelihood of funding is greatly reduced for proposals submitted after the initial closing date.

DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

Failure to comply with the submission procedures may result in the submission not being evaluated.

D. Intergovernmental Review - N/A

E. Funding Restrictions

The Defense Appropriations Act caps indirect cost rates at 35% of the total cost of the award for any procurement contract, grant or agreement using 6.1 Basic Research Funding. The cost limitations do not flow down to subcontractors. Total costs include all bottom line costs. Indirect costs are defined as follows:

- For Educational Institutions subject to the cost principles in 2 CFR part 220, indirect costs are all costs of a prime award that are Facilities and Administration costs.

- For State, Local, and Indian Tribal Governments subject to 2 CFR part 225, Non-Profit Organizations subject to 2 CFR part 230 and all other organizations subject to 48 CFR part 32 Federal Acquisition Regulation, indirect cost are any cost not directly identified with a single final cost objective (i.e. costs identified with two or more final cost objectives or with at least one intermediate cost objective).

DARPA currently anticipates using 6.3 funding for this program.

F. Other Submission Requirements

Proposals MUST NOT be submitted to DARPA via email or fax (see Submission instructions above in Section IV.B).

V. APPLICATION REVIEW INFORMATION

A. Evaluation Criteria

Evaluation of proposals will be accomplished through a scientific review of each proposal using the following criteria. While these criteria are listed in descending order of relative importance, it should be noted that the combination of all non-cost evaluation factors is significantly more important than cost.

1. Overall Scientific and Technical Merit

The offeror's proposal will be evaluated on the long term effects of the proposed research including the impact on technology, whether there is sufficient technical payoff to warrant any risk and the offeror's ability to meet program metrics. In addition, the proposed technical approach will be evaluated for feasibility, achievability, completeness and whether it is supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. The expertise and experience of the offeror's proposed technical team will be evaluated based upon the qualifications of the key personnel proposed for the effort and their previous accomplishments on similar efforts.

2. Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application.

3. Realism of Proposed Schedule

The offeror's proposal will be evaluated on how realistic the proposed schedule is in relation to the performance metrics. The offeror will be evaluated on their understanding of the timeframe necessary to meet performance metrics and to identify and mitigate any potential risk in schedule.

4. Plans and Capability to Accomplish Technology Transition

The offeror will be evaluated on their capability to transition the technology to the research, industrial, and operational military communities in such a way as to enhance U.S. defense. In addition, the evaluation will take into consideration the extent to which intellectual property (IP) rights limitations creates a barrier to technology transition.

5. Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the proposed approach, as well as to determine the offeror's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the BAA, and are consistent with the offeror's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review, at the prime and subcontract level, of the number and types of labor-hours proposed (quantity and mix) per task as well as the types and quantity of materials, equipment and fabrication costs, travel and other various elements proposed.

NOTE: OFFERORS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

B. Review and Selection Process

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Each proposal will be evaluated on the merit and relevance of the specific proposal as it relates to the office rather than against other proposals for research in the same general

area, since no common work statement exists. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons. For evaluation purposes, a proposal is the document described above in IV.B. – Content and Form of Application Submission. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Award(s) will be made to offerors whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort.

Restrictive notices notwithstanding, offerors are advised that employees of commercial firms under contract to the Government may be used by DARPA to administratively process proposals, monitor contract performance, or perform other administrative duties requiring access to other contractors' proprietary information. These support contracts include nondisclosure agreements prohibiting their contractor employees from disclosing any information submitted by other contractors or using such information for any purpose other than that for which it was furnished. By submission of its proposal, each offeror agrees that proposal information may be disclosed to those non-Government personnel for the limited purposes stated above. In addition, these support contractors are prohibited from competition in DARPA technical research. Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. Upon completion of the scientific review process, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

VI. AWARD ADMINISTRATION INFORMATION

A. Award Notices

As soon as the evaluation of a proposal is complete, the offeror will be notified that 1) the proposal has been selected for funding pending contract negotiations, or, 2) the proposal has not been selected. These official notifications will be sent via US mail to the Technical POC identified on the proposal coversheet.

B. Administrative and National Policy Requirements

1. Security Classification and Proprietary Issues

DARPA will provide security classification guidance via a DD Form 254 (DoD Contract

Security Classification Specification). An amended DD Form 254 will be issued upon contract award.

DARPA anticipates that proposals will be unclassified however, if offerors may submit a classified appendix (up to SECRET) to their proposal, if necessary. If a proposal is submitted as "Classified National Security Information" as defined by Executive Order 12958 as amended, then the information must be marked and protected as though classified at the appropriate classification level and then submitted to DARPA for a final classification determination. NOTE: If proposals are classified, the proposals must indicate the classification level of not only the proposal itself, but also the anticipated award document classification level.

Offerors choosing to submit a classified proposal from other classified sources must first receive permission from the respective Original Classification Authority in order to use their information in replying to this BAA. Applicable classification guide(s) should also be submitted to ensure the proposal is protected at the appropriate classification level.

Submissions requiring DARPA to make a final classification determination shall be marked as follows: "CLASSIFICATION DETERMINATION PENDING. Protect as though classified (insert the recommended classification level: (e.g., Top Secret, Secret or Confidential)"

Classified submissions shall be appropriately and conspicuously marked with the proposed classification level and declassification date. In addition, classified submissions shall be in accordance with the following guidance:

Confidential and Secret Collateral Information: Use classification and marking guidance provided by previously issued security classification guides, the Information Security Regulation (DoD 5200.1-R), and the National Industrial Security Program Operating Manual (DoD 5220.22-M) when marking and transmitting information previously classified by another Original Classification Authority. Classified information at the Confidential and Secret level may be mailed via appropriate U.S. Postal Service methods (e.g., USPS Registered Mail or USPS Express Mail). All classified information will be enclosed in opaque inner and outer covers and double wrapped. The inner envelope shall be sealed and plainly marked with the assigned classification and addresses of both sender and addressee. The inner envelope shall be address to:

Defense Advanced Research Projects Agency
ATTN: Information Processing Techniques Office
Reference: DARPA-BAA-10-05
3701 North Fairfax Drive
Arlington, VA 22203-1714

The outer envelope shall be sealed with no identification as to the classification of its contents and addressed to:

Defense Advanced Research Projects Agency
Security & Intelligence Directorate, Attn: CDR
3701 North Fairfax Drive
Arlington, VA 22203-1714

All Top Secret materials: Top Secret information should be hand carried by an appropriately cleared and authorized courier to the DARPA CDR. Prior to traveling, the courier shall contact the DARPA CDR at 571 218-4842 to coordinate arrival and delivery.

Special Access Program (SAP) Information: SAP information must be transmitted via approved methods. Prior to transmitting SAP information, contact the DARPA SAPCO at 703-526-4052 for instructions.

Sensitive Compartmented Information (SCI): SCI must be transmitted via approved methods. Prior to transmitting SCI, contact the DARPA Special Security Office (SSO) at 703-248-7213 for instructions.

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the offeror's responsibility to clearly define to the Government what is considered proprietary data.

Offerors must have existing and in-place prior to execution of an award, approved capabilities (personnel and facilities) to perform research and development at the classification level they propose. It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed.

2. Intellectual Property

a. Procurement Contract Offerors

i. Noncommercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Offerors shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that offerors do not submit the list, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated,

developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, then offerors should identify the data and software in question, as subject to Government Purpose Rights (GPR). In accordance with DFARS 252.227-7013 Rights in Technical Data - Noncommercial Items, and DFARS 252.227-7014 Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation, the Government will automatically assume that any such GPR restriction is limited to a period of five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire "unlimited rights" unless the parties agree otherwise. Offerors are admonished that the Government will use the list during the scientific review process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror's assertions. If no restrictions are intended, then the offeror should state "NONE."
A sample list for complying with this request is as follows:

NONCOMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

ii. Commercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all commercial technical data and commercial computer software (including open source software) that may be embedded in, or that may create linkages affecting distribution rights to, any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event that offerors do not submit the list, the Government will assume that there are no restrictions on the Government's use of such commercial items. The Government may use the list during scientific review process to evaluate the impact of any identified restrictions and may request additional information from the offeror, as may be necessary, to evaluate the offeror's assertions. If no restrictions are intended, then the offeror should state "NONE."

A sample list for complying with this request is as follows:

COMMERCIAL			
Technical Data Computer Software To be Furnished With Restrictions	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions

(LIST)	(LIST)	(LIST)	(LIST)

b. Non-Procurement Contract Offerors – Noncommercial and Commercial Items (Technical Data and Computer Software)

Offerors responding to this BAA requesting an Other Transaction Agreement shall follow the applicable rules and regulations governing these various award instruments, but in all cases should appropriately identify any potential restrictions on the Government's use of any Intellectual Property contemplated under those award instruments in question. This includes both Noncommercial Items and Commercial Items. Although not required, offerors may use a format similar to that described above. The Government may use the list during the scientific review process to evaluate the impact of any identified restrictions, and may request additional information from the offeror, as may be necessary, to evaluate the offeror's assertions. If no restrictions are intended, then the offeror should state "NONE."

c. All Offerors – Patents

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be used under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal uses, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

d. All Offerors – Intellectual Property Representations

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be used under your proposal for the DARPA program. Additionally, offerors shall provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research.

1. Meeting and Travel Requirements

Work under the FITT Program will occur in multiple locations: 1) DARPA, 2) Air Force Research Laboratory (AFRL) in Rome NY, and 3) the facilities of the prime contractor for each performer team. Major meetings will last one full day and include representatives from all organizations participating in the program.

In each phase, there will be a kickoff meeting with all key participants required to attend. There will be quarterly technical review meetings and a final review meeting. Offerors should plan for a kickoff meeting at each prime contractor location and a final review meeting at AFRL. Quarterly technical review meetings may be hosted by FITT performers if requirements for meeting space and security can be satisfied. Alternatively, these meetings may be held at DARPA or AFRL. Offerors should plan for

travel within CONUS for all quarterly review meetings. Only personnel presenting briefings are required to attend.

In addition to these quarterly meetings, offerors should also anticipate smaller scale site visits at the program manager's discretion.

2. Human Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects* (http://www.dtic.mil/biosys/downloads/32cfr219.pdf), and DoD Directive 3216.02, *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research* (http://www.dtic.mil/whs/directives/corres/html2/d32162x.htm).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (http://www.hhs.gov/ohrp). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

For all proposed research that will involve human subjects in the first year or phase of the project, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance, along with evidence of appropriate training for all investigators, should accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training is required before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last for one to three months, followed by a DoD review that can

last for three to six months. No DoD/DARPA funding can be used toward human subjects research until ALL approvals are granted.

3. Animal Use

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); (ii) the guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals"; (iii) DoD Directive 3216.01, “Use of Laboratory Animals in DoD Program.”

For submissions containing animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the PHS Policy on Humane Care and Use of Laboratory Animals, available at http://grants.nih.gov/grants/olaw/olaw.htm.

All Recipients must receive approval by a DoD certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the USAMRMC Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc.amedd.army.mil/AnimalAppendix.asp

4. Publication Approval

It is the policy of the Department of Defense for products of fundamental research to remain unrestricted to the maximum extent possible. The definition of Contracted Fundamental Research is:

> “Contracted Fundamental Research includes [research performed under] grants and contracts that are (a) funded by budget category 6.1 (Basic Research), whether performed by universities or industry or (b) funded by budget category 6.2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.” Such research is referred to by DARPA as “Restricted Research.”

Research performed under grants and contracts that are (a) funded by budget category 6.2 (Applied Research) and NOT performed on-campus at a university or (b) funded by budget category 6.3 (Advanced Research) does not meet the definition of fundamental research. Publication restrictions will be placed on all such research.

It is anticipated that the performance of research resulting from the BAA is non-fundamental research.

Offerors are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments. DARPA will make this election if it determines that the research resulting from the proposed program will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program and will be considered Restricted Research.

For certain research projects, it may be possible that although the research being performed by the Prime Contractor is Restricted Research, a subcontractor may be conducting Contracted Fundamental Research. In those cases, it is the Prime Contractor's responsibility to explain in their proposal why its subcontractor's effort is Contracted Fundamental Research.

The following or similar provision will be incorporated into any resultant Restricted Research or Non-Fundamental Research procurement contract or other transaction:

> There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the DARPA Technical Information Officer (DARPA/TIO). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. With regard to subcontractor proposals for Contracted Fundamental Research, papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.
>
> When submitting material for written approval for open publication, the Contractor/Awardee must submit a request for public release to the DARPA TIO and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor/Awardee's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to tio@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714,

telephone (571) 218-4235. Refer to www.darpa.mil/tio for information about DARPA's public release process.

5. Export Control

Should this project develop beyond fundamental research (basic and applied research ordinarily published and shared broadly within the scientific community) with military or dual-use applications the following apply:

- The Contractor shall comply with all U. S. export control laws and regulations, including the International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, in the performance of the contract or agreement. In the absence of available license exemptions/exceptions, the Contractor shall be responsible for obtaining the appropriate licenses or other approvals, if required, for exports (including deemed exports) of hardware, technical data, and software, or for the provision of technical assistance.
- The Contractor shall be responsible for obtaining export licenses, if required, before utilizing foreign persons in the performance of this contract, including instances where the work is to be performed on-site at any Government installation (whether in or outside the United States), where the foreign person will have access to export-controlled technologies, including data or software.
- The Contractor shall be responsible for all regulatory record keeping requirements associated with the use of licenses and license exemptions/exceptions.
- The Contractor shall be responsible for ensuring that the provisions of this clause apply to its subcontractors.

6. Subcontracting

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each offeror who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a) (1) and (2) should do so with their proposal. The plan format is outlined in FAR 19.704.

7. Central Contractor Registration (CCR)

Offerors selected, but not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to any award under this BAA. Information on CCR registration is available at http://www.ccr.gov

8. On-line Representations and Certifications (ORCA)

In accordance with FAR 4.1201, prospective offerors shall complete electronic annual representations and certifications at http://orca.bpn.gov.

9. Wide Area Work Flow (WAWF)

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at http://wawf.eb.mil. Registration to WAWF will be required prior to any award under this BAA.

10. Electronic and Information Technology

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2. Each offeror who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities and members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and data by members of the public who are not individuals with disabilities.

11. Employment Eligibility Verification

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as Federal Contractors in E-verify and use E-Verify to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification." This clause will not be included in grants, cooperative agreements, or Other Transactions.

C. Reporting

The number and types of reports will be specified in the award document, but will include as a minimum quarterly financial status reports. In addition, each performing contractor (including subs) on each team will be expected to provide monthly status reports to the Program Manager. Reports and briefing materials shall be prepared and submitted in accordance with the procedures contained in the award document. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

1. T-FIMS

The above reports may be electronically submitted by each awardee under this BAA via the DARPA Technical – Financial Information Management System (T-FIMS). If applicable, the T-FIMS URL and instructions will be furnished by the contracting agent prior to award.

2. I-Edison

All required reporting shall be accomplished, as applicable, using the i-Edison.gov reporting website at http://s-edison.info.nih.gov/iEdison

VII. AGENCY CONTACTS

DARPA will use electronic mail for all technical and administrative correspondence regarding this BAA, with the exception of selected/not-selected notifications.

All unclassified administrative, technical or contractual questions should be sent via e-mail to DARPA-BAA-10-05@darpa.mil. If e-mail is not available, please fax questions to (703) 248-8036, Attention: FITT Solicitation. All requests must include the name, email address, and phone number of a point of contact. Classified technical questions must be submitted via secure fax to 571-218-4516.

Solicitation Web site: http://www.darpa.mil/ipto/solicit/solicit_open.asp.

VIII. OTHER INFORMATION

A. Frequently Asked Questions (FAQ)

The solicitation web page at http://www.darpa.mil/ipto/solicit/solicit_open.asp will be updated with a FAQ list.

B. Proposer's Day

DARPA held a Proposer's Day on 18 November 2009. Details about the Proposer's Day will be provided at http://www.darpa.mil/ipto/solicit/solicit_open.asp